

FIG.1

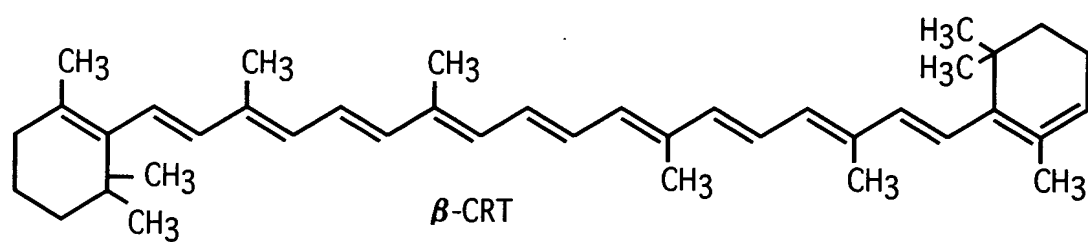


FIG.2

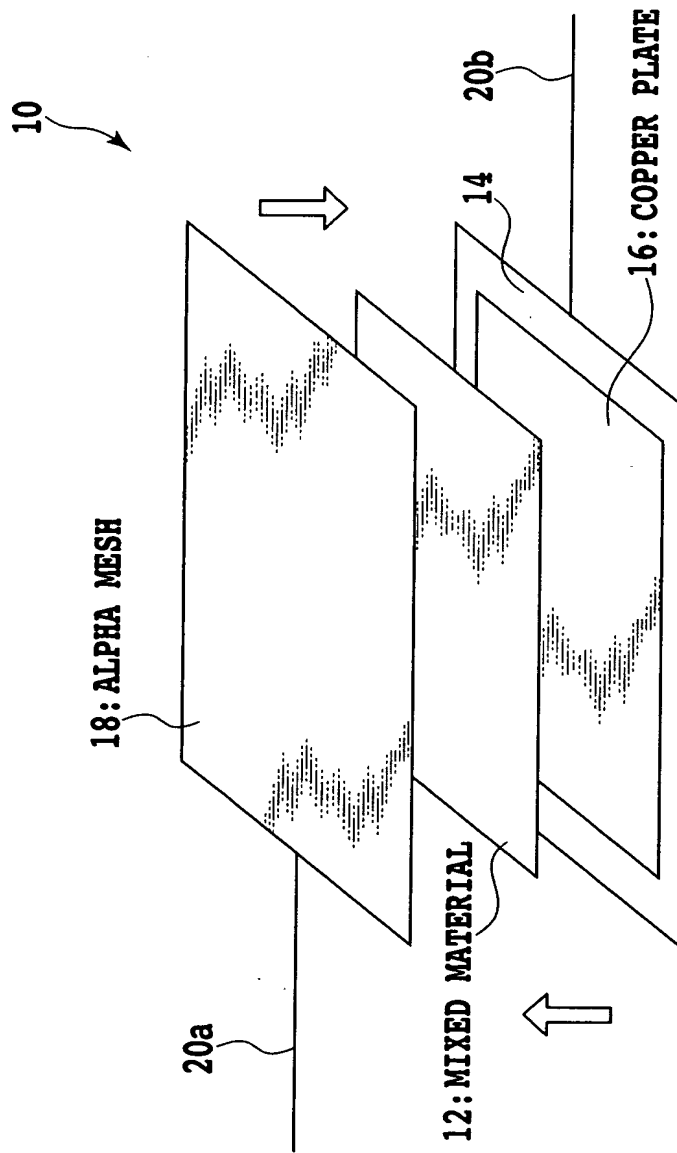


FIG. 3

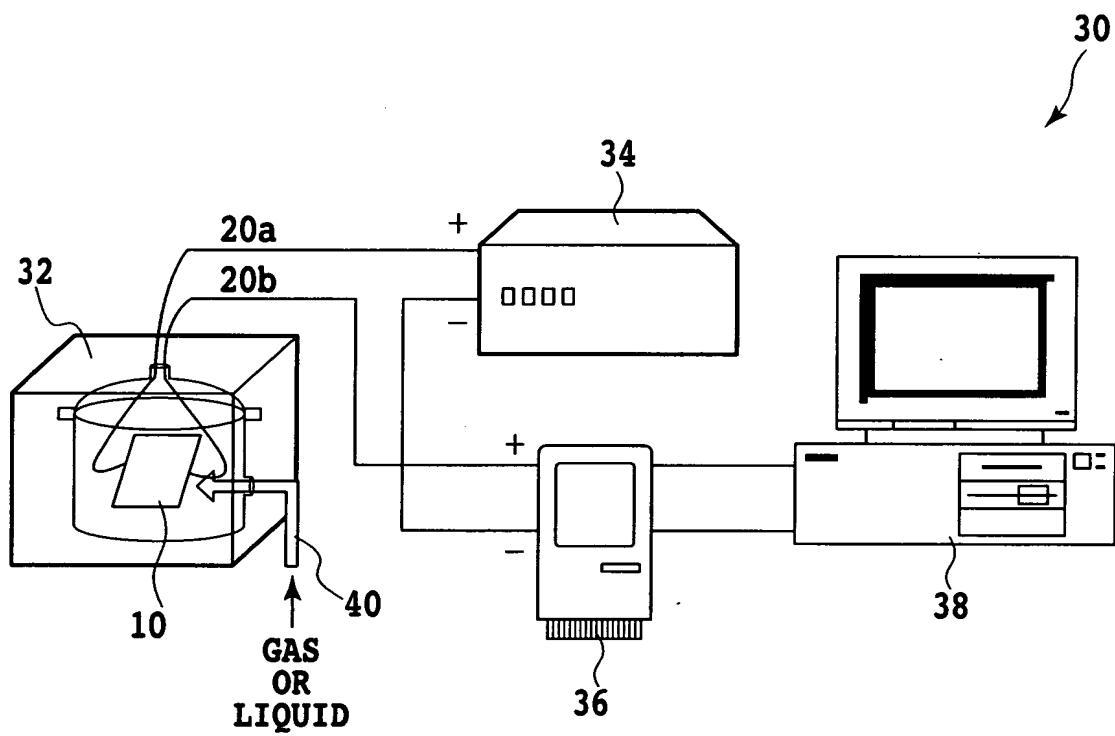


FIG.4

5/19

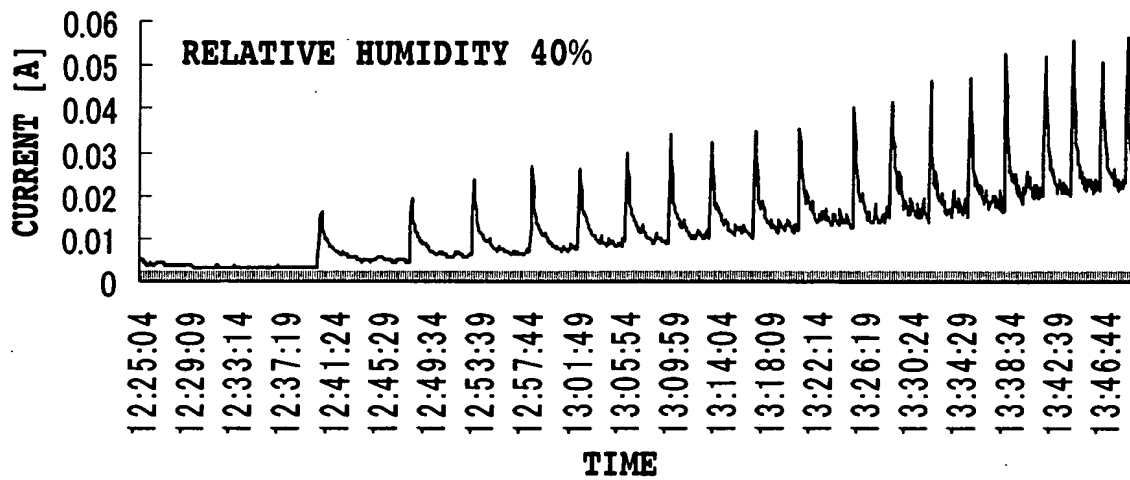


FIG.5A

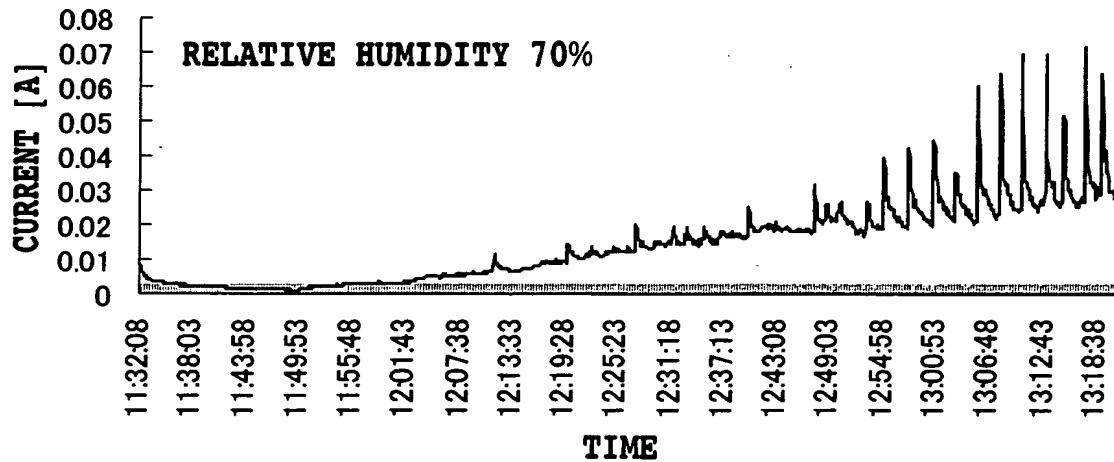
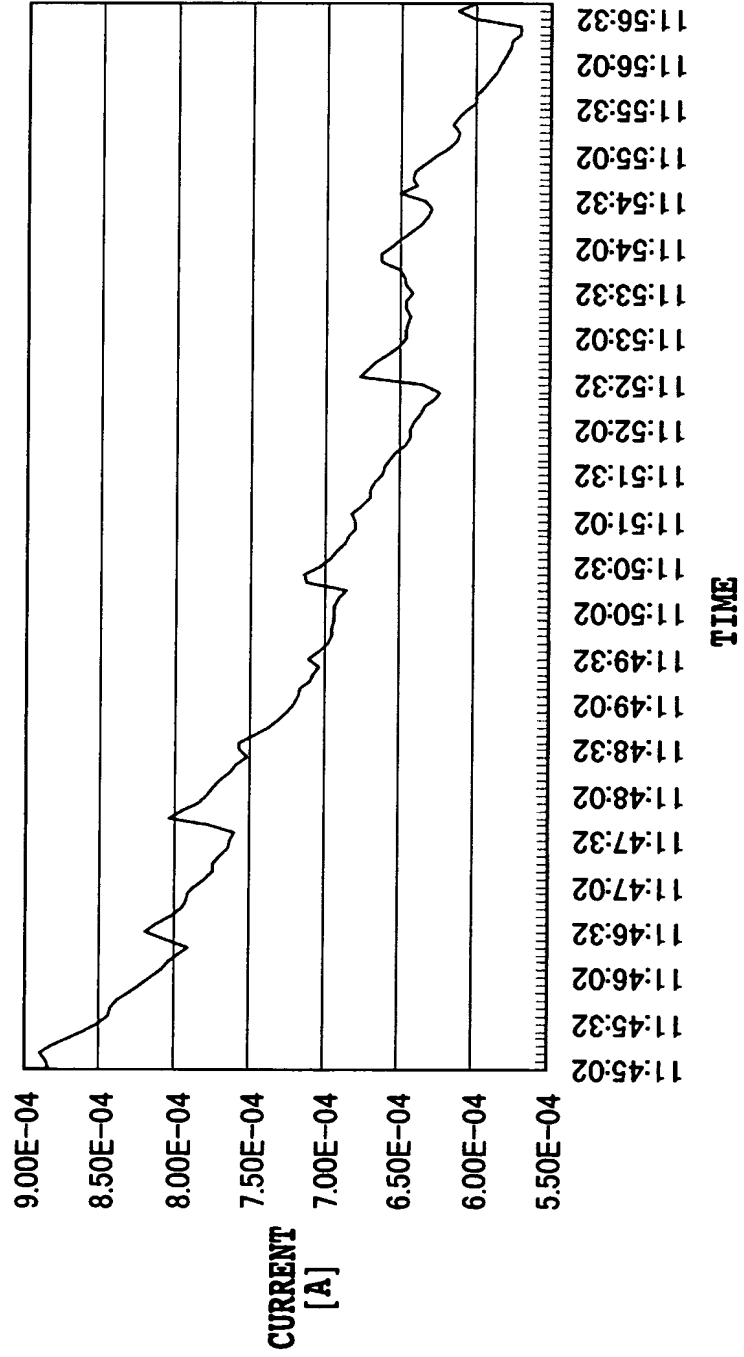


FIG.5B



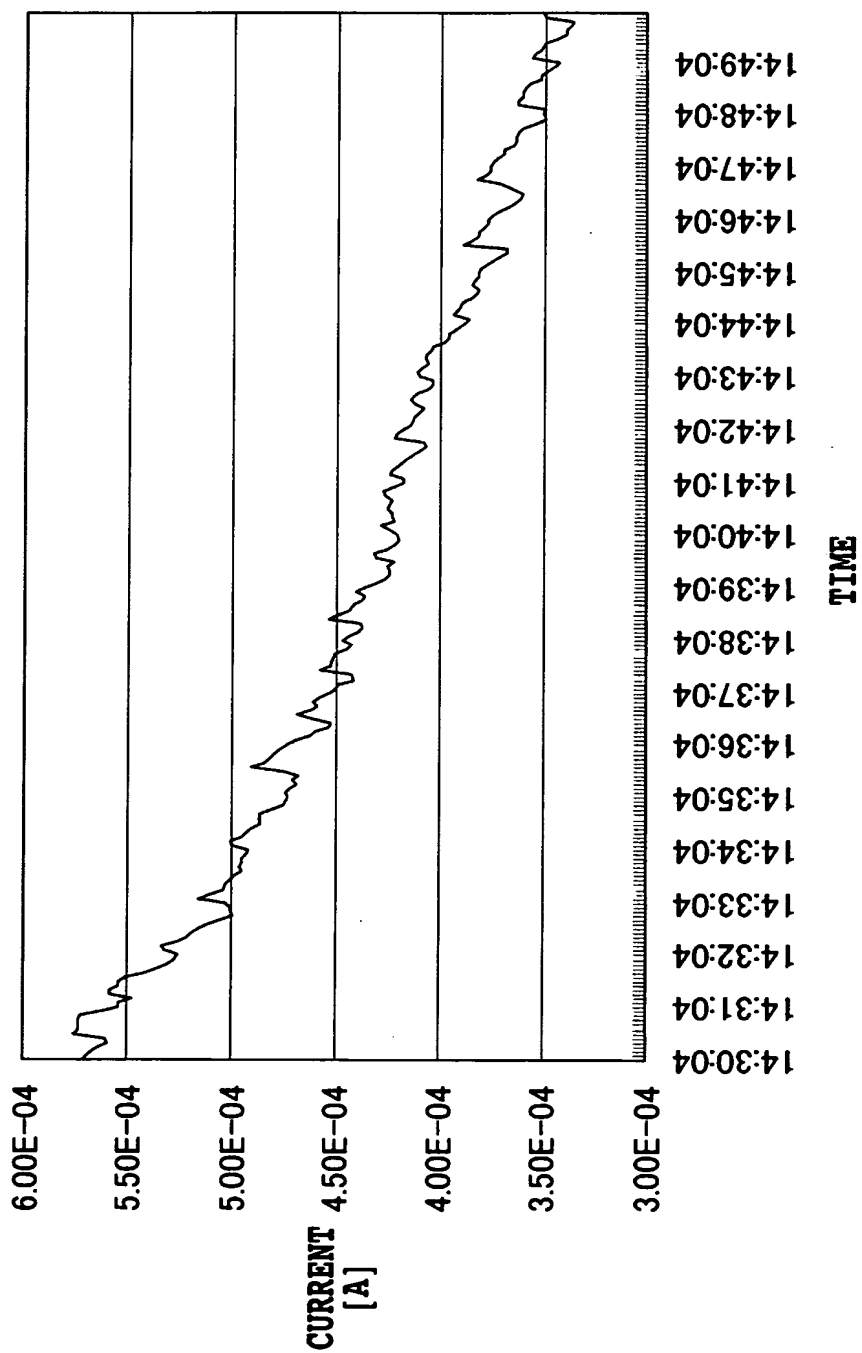


FIG.7

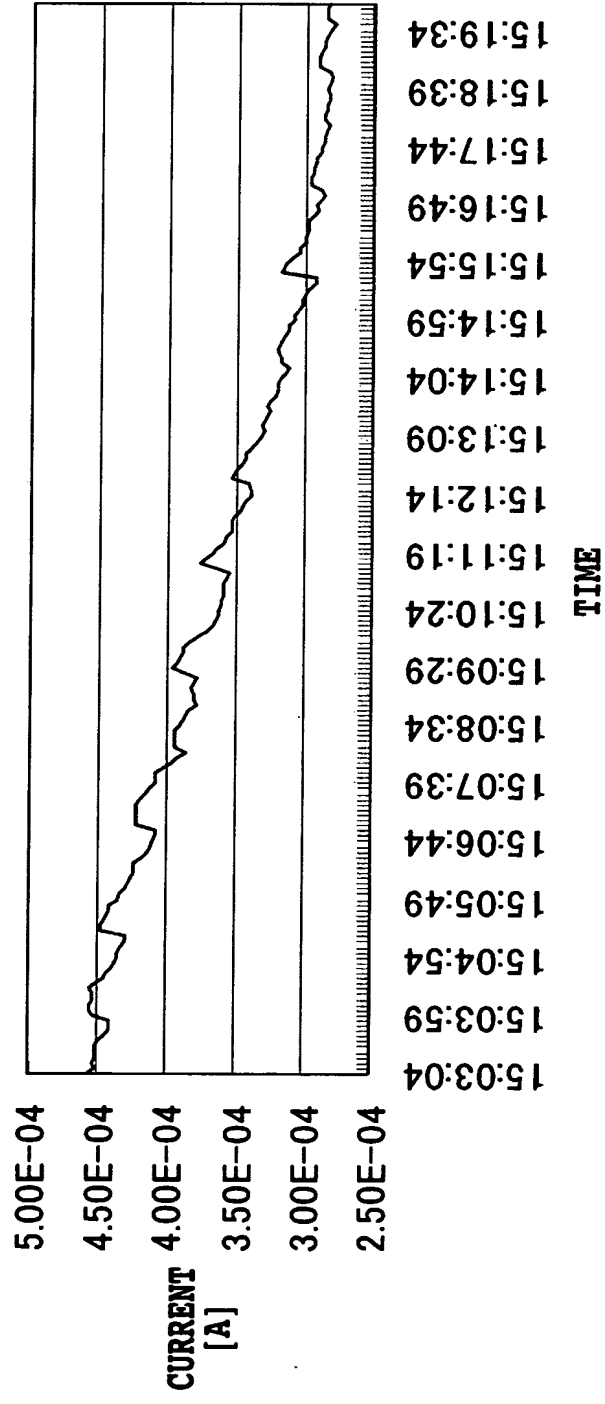


FIG.8

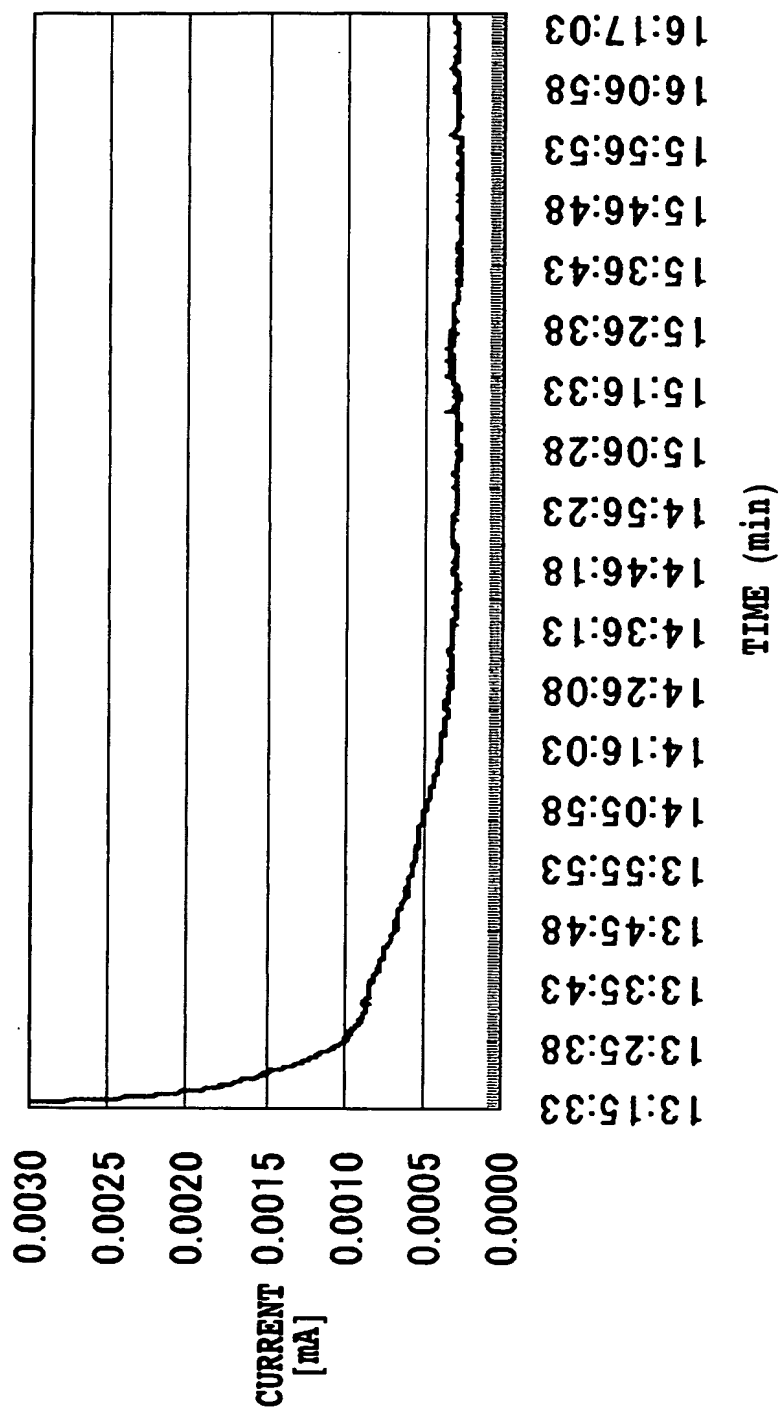
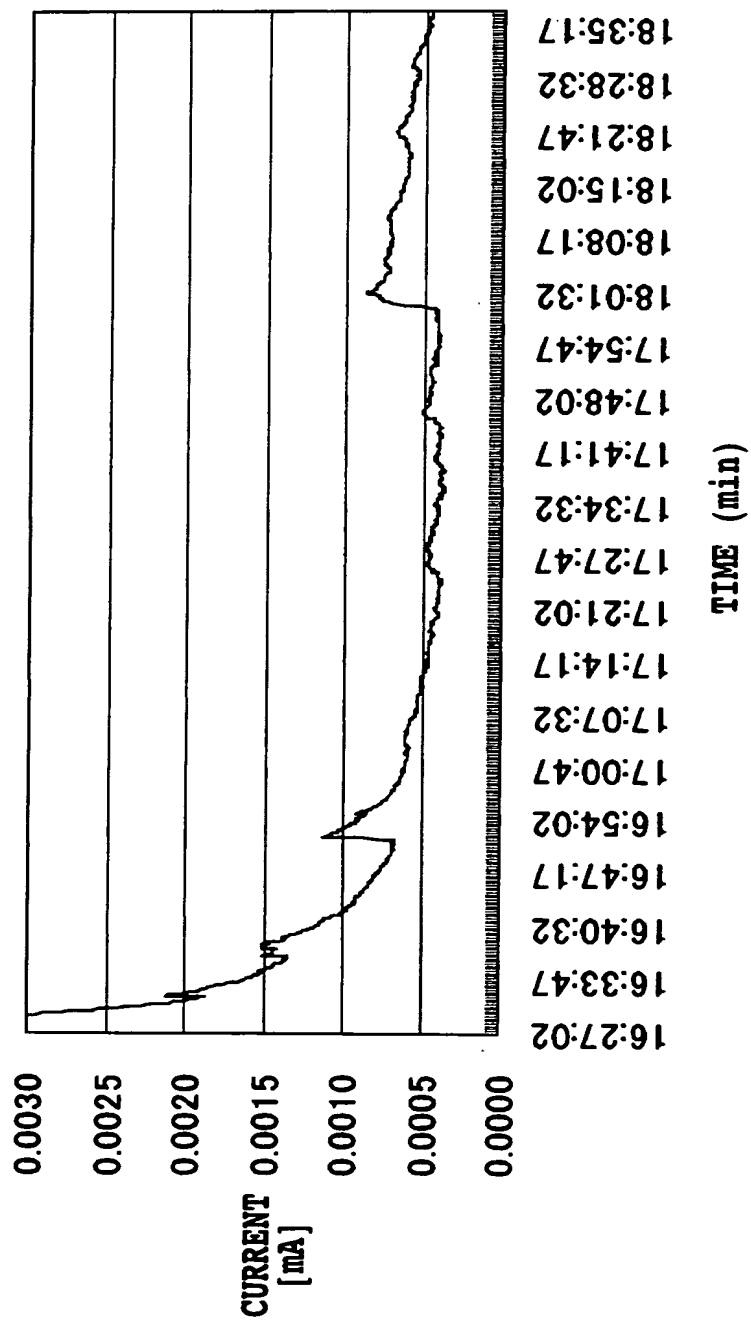


FIG.9



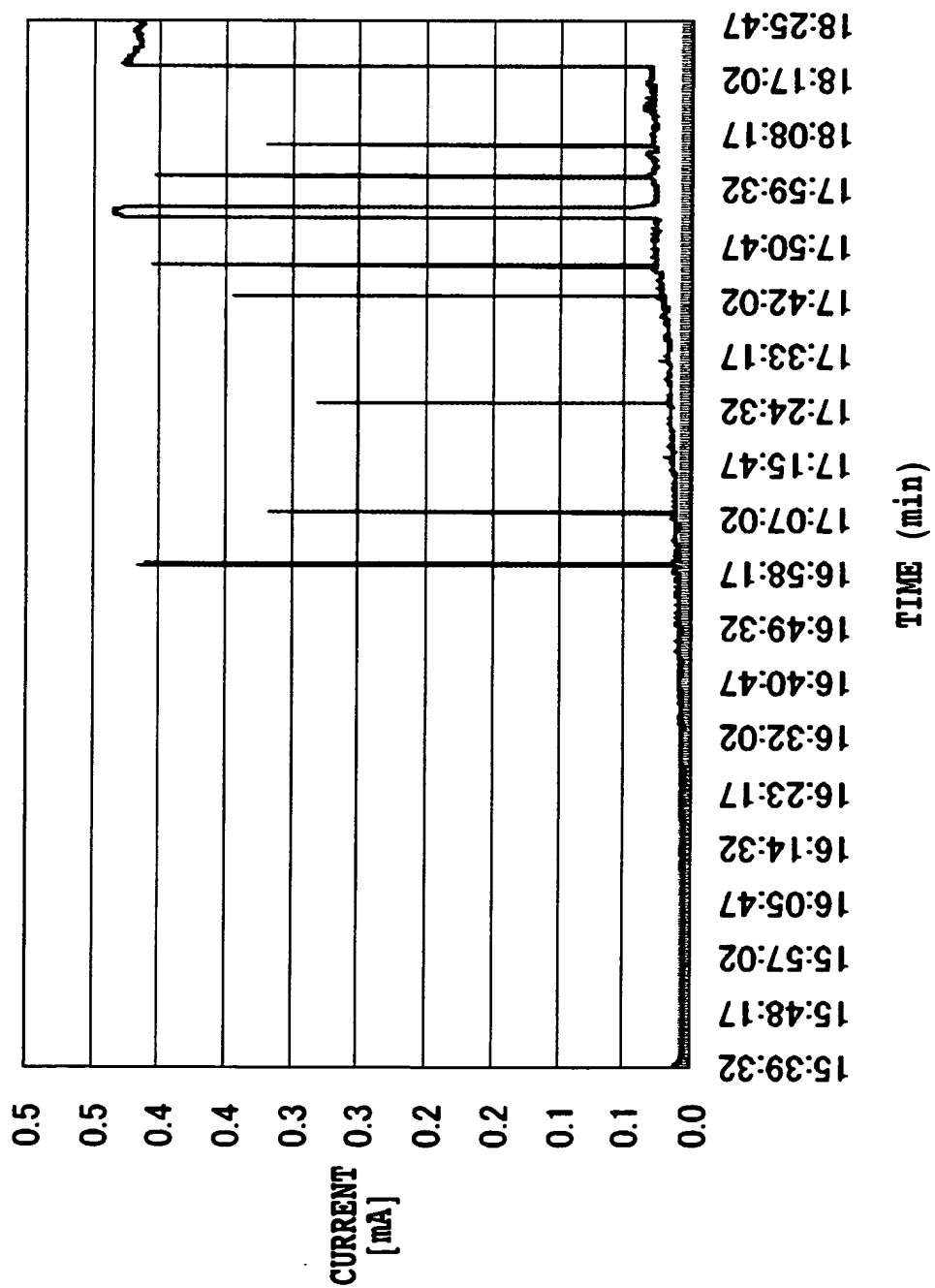


FIG.11

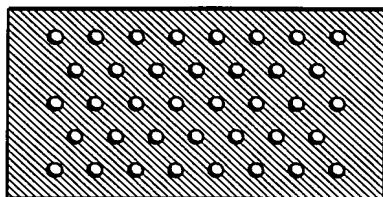


FIG.12C

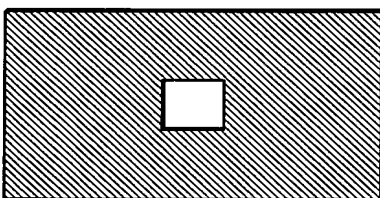


FIG.12B

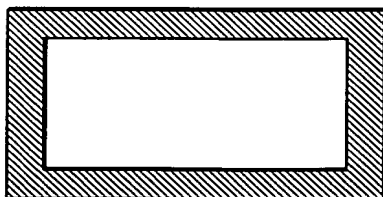


FIG.12A

13/19

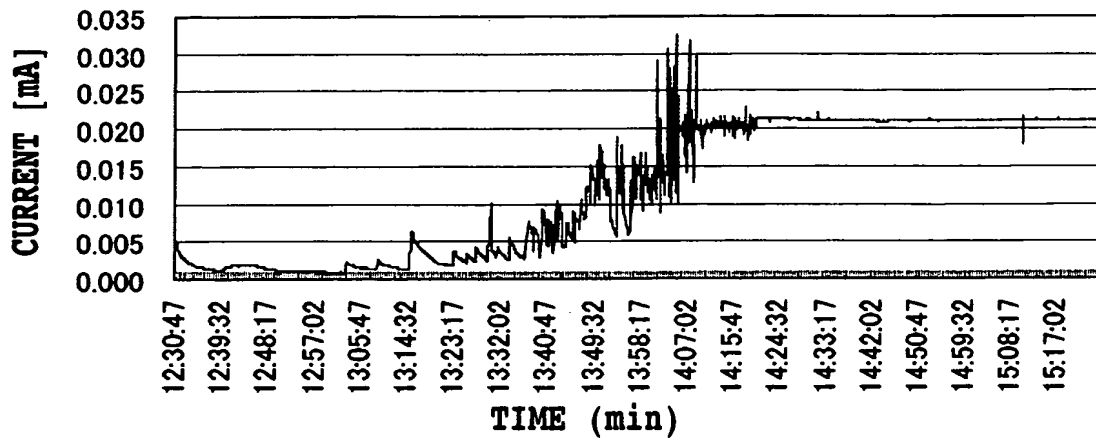


FIG.13A

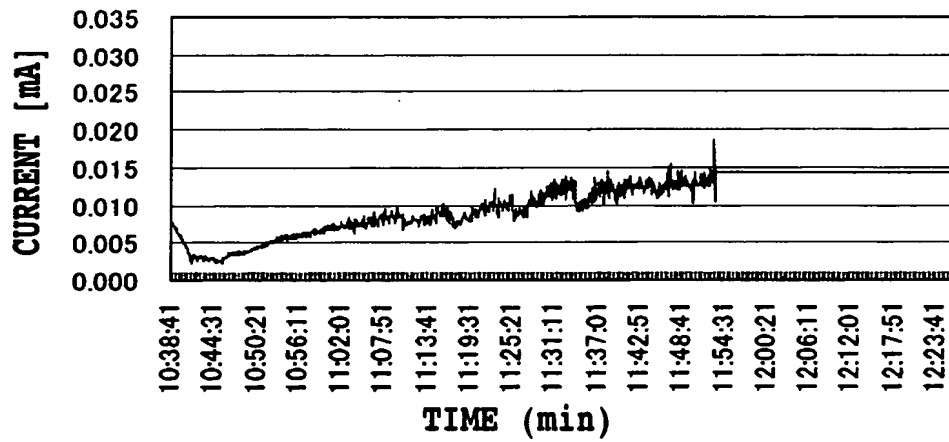


FIG.13B

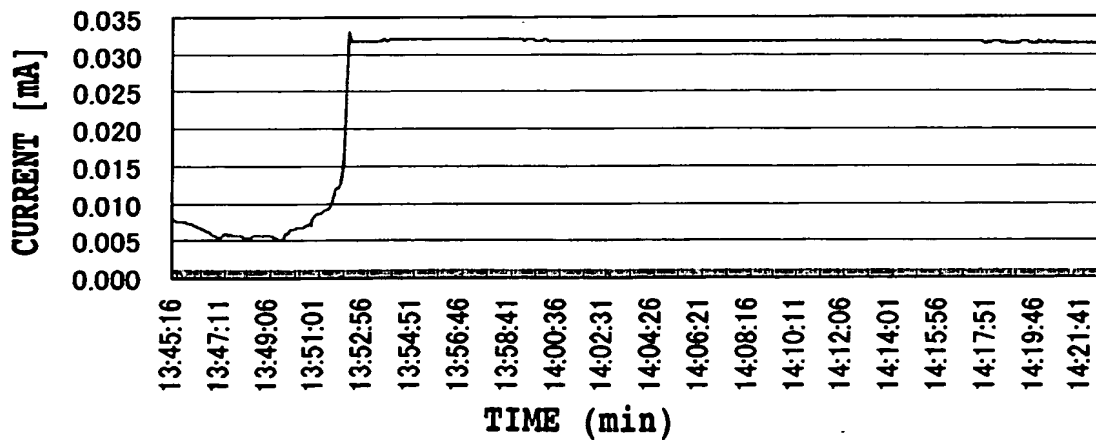


FIG.13C

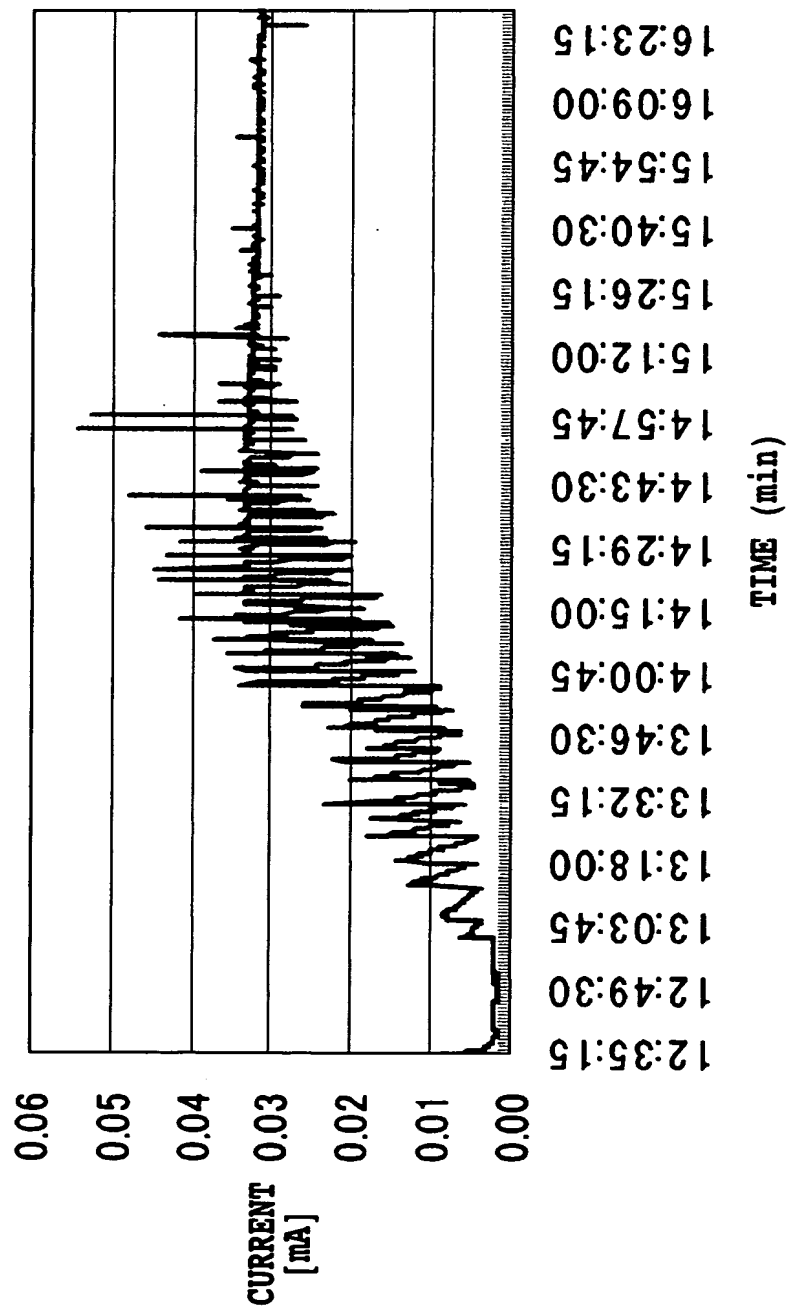


FIG.14

FIG.15

FIG.15A
FIG.15B
FIG.15C

COMPARISON OF THE PRESENT METHOD WITH CONVENTIONAL METHODS

	CONDITION OF β -CAROTENE	MEASUREMENT METHOD	CURRENT VARIATION RANGE (A)	RESPONSE RATE	REACTANT	CURRENT PEAK VALUE
ROSENBERG	β POWDER TYPE (DRY TYPE)	SANDWICHING WITH TWO SHEETS OF ELECTRODES	$10^{-12} \sim 10^{-6}$	1 h	METHANOL	1 μ A
ASAI	DISSOLVED IN PETROLEUM ETHER (EVENTUALLY, DRY TYPE)	COATING ON QUARTZ OR GLASS PLATE, THIN FILM	$10^{-9} \sim 10^{-6}$	0.4 h	METHANOL	10 μ A
MITACHI LAB EXAMPLE 1	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH	$10^{-3} \sim 10^{-2}$	< 1 min	AMMONIA	18 mA

FIG.15A

MITACHI LAB EXAMPLE 7	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH PLATINUM PLATE AND STAINLESS- STEEL MESH	0.2 ~ 0.3	< 1 min	AMMONIA	300 mA
MITACHI LAB EXAMPLE 2	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		2 min	TRIMETHYL AMINE	50 μ A
MITACHI LAB EXAMPLE 3	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		40 sec	BUTANOL	23 μ A
MITACHI LAB EXAMPLE 4	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH PLATINUM PLATE AND STAINLESS- STEEL MESH		15 min 14 sec	PROPANOL	133 μ A
MITACHI LAB	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		8 min	METHANOL	600 μ A
MITACHI LAB	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		13 min	ACETONE	110 μ A
MITACHI LAB	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		13 min 55 sec	BENZENE	34 μ A
MITACHI LAB EXAMPLE 5	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		2 min 55 sec	2-PHENYL ETHANOL	1.62 mA

FIG.15B

MITACHI LAB EXAMPLE 6	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		5 min 37 sec	GERANIOL	85 μ A
MITACHI LAB	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		25 min 35 sec	CITRONELLOL	1.2 mA
MITACHI LAB	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		1 h	ALPHA- PINENE	240 mA
MITACHI LAB	GLYCERIN + SODIUM THIOSULFATE + ETHANOL (WET TYPE)	SANDWICHING WITH COPPER PLATE AND STAINLESS-STEEL MESH		20 min 55 sec	HEATED COOKING OIL	2.2 mA

FIG.15C

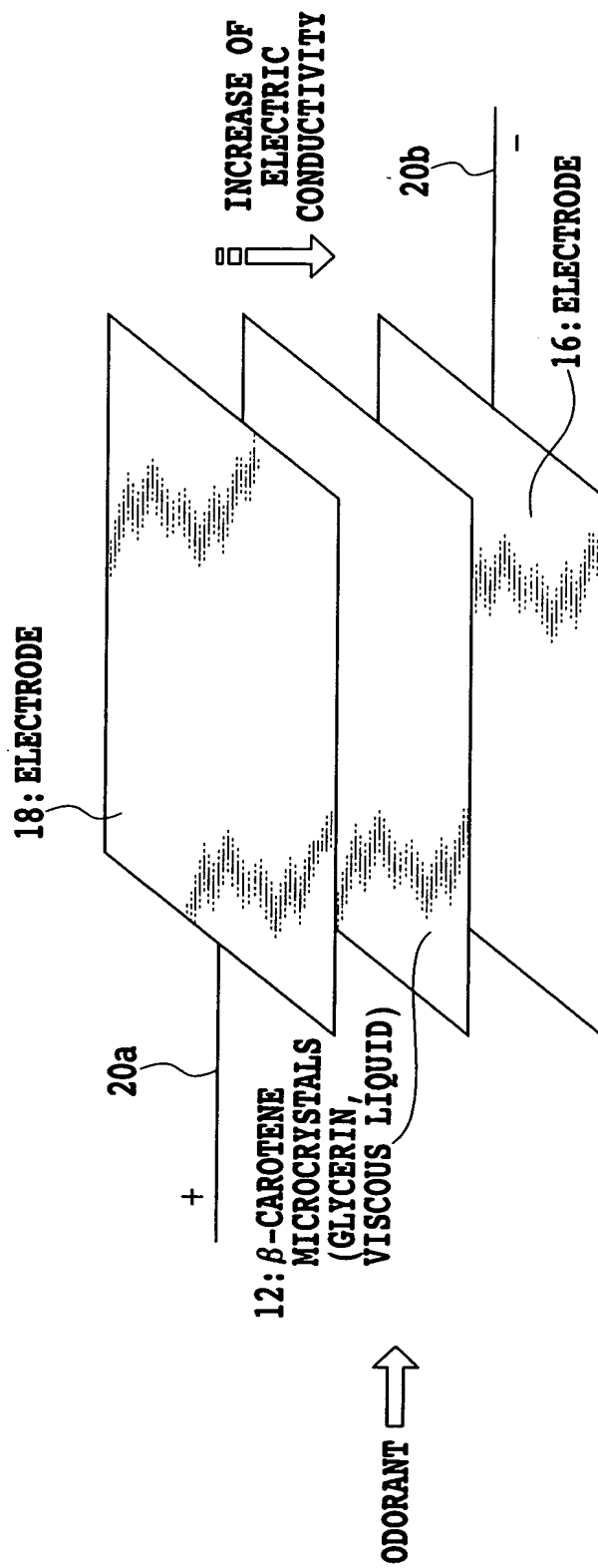


FIG.16

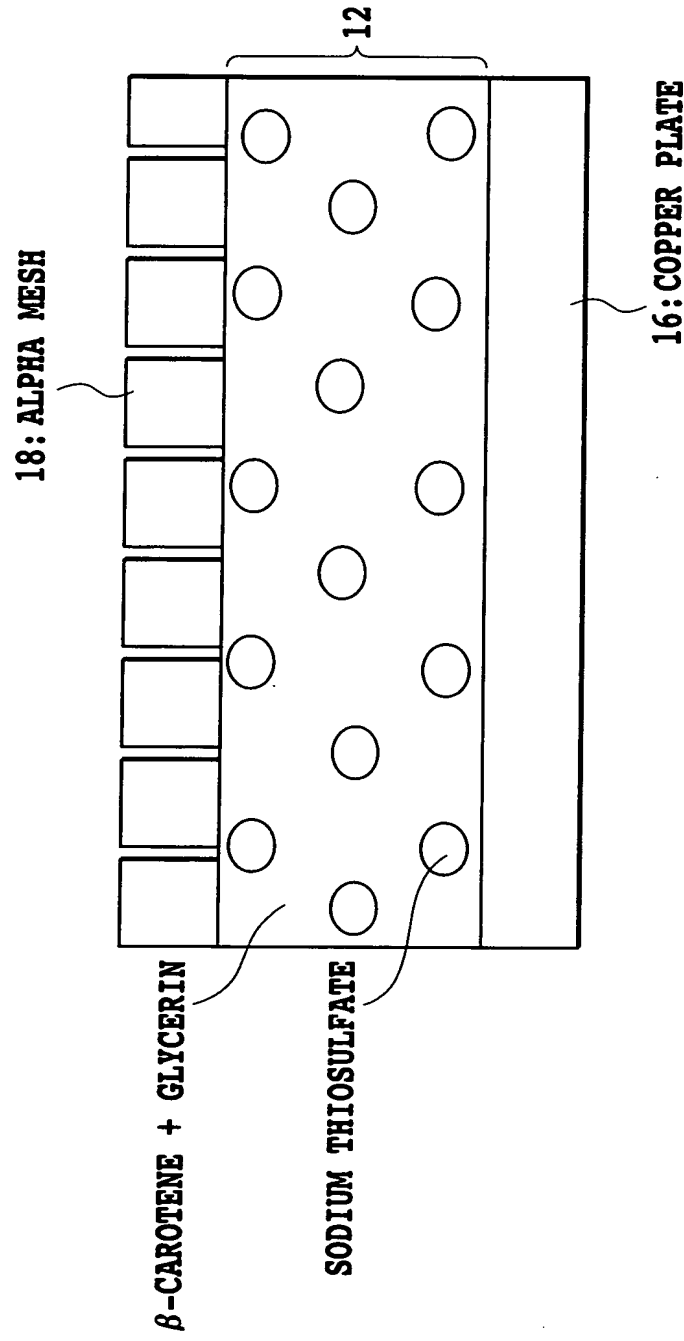


FIG.17